BT Group

mmWave

UK SPF Cluster 1 Workshop

26 July 2022

mmWave can support very high capacity, low latency, connections to enable new services and to serve places with very high customer densities

Example potential future mmWave use cases

A range of new applications are being discussed or demonstrated by industry

Generic applications	• Hotspot scenarios: train stations, tourist locations, busy places / venues • Fixed wireless access – where no or limited fixed broadband • Metaverse/AR/VR/xR ; Cloud gaming
Entertainment	• Live events enhanced with AR experience- stadiums/arenas/venue specific • VR/AR to mobilise live entertainment view (watch boxing fight in the pub) • Media broadcast/Multicast and media delivery eg Uplink content to cloud • VR for e.g., tourist locations/education entertainment etc.
Automotive / transport	• Infotainment, gaming, mobile broadband • Connected and autonomous vehicles • Generic eMBB service support
Industrial/ manufacturing	• Robotics and automation • Asset management and supply chain
Smart cities	• Sensors
Medical	• Remote diagnostic, e.g. hospitals
Public safety	• Sensors and video footage transmission
Drones	• Public safety/Deliveries/Monitoring
Network	• Integrated access and backhaul

Existing deployments outside UK

(i.e., USA, Italy, Australia, and elsewhere)

- **Fixed Wireless Access**
  - (urban and rural)
- **Coverage of stadiums**
- **Urban hotspots**

mmWave can support new use cases and cost effective capacity provision in specific places

High level observations about Ofcom's recent proposals to authorise mmWave spectrum for mobile by 2024

Market based approach is preferable

Awarding the spectrum in all areas as in Italy would facilitate investment / ecosystem development.

Trading/leasing/local access licences would allow smaller players to access spectrum

Shared access licences for sites in low density areas (and bottom 850MHz in top cities/towns) could be complicated and slow

26 GHz Auction

Need to avoid overly complex auction – don't separately auction each of [40] towns/cities; avoid fragmented assignments.

National/sub-national licence to cover (redefined) high traffic areas and specific venues, motorways etc.

Speed up 26GHz link clearance with grants?

Competition measures, if 40GHz liberalised.

40 GHz Options

Liberalisation of existing licences would allow market mechanisms to migrate to mobile use.

Revocation / re-auction should include grants/ compensation as costs to clear fixed links are higher than assumed.

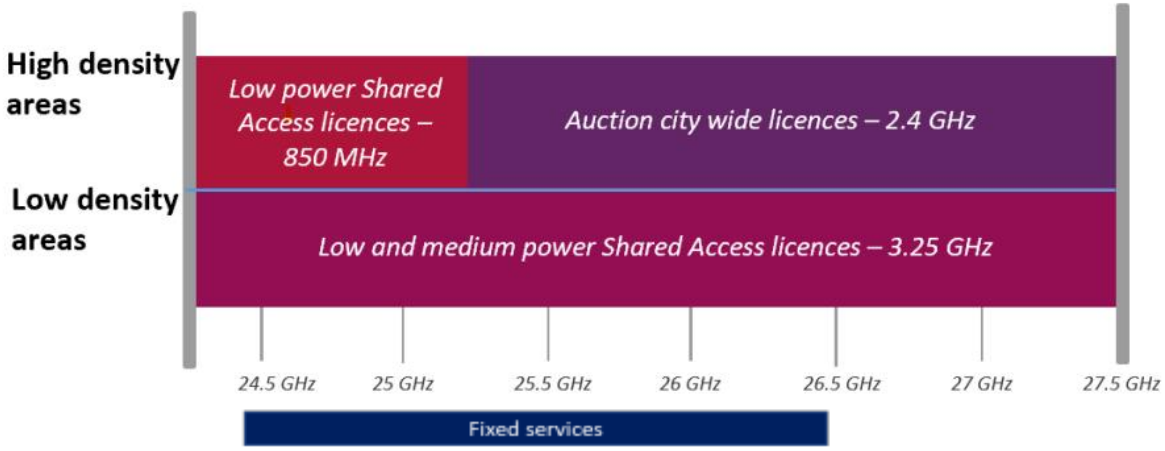
Licence Duration

10-15 year fixed term licence not compatible with investment cycle.

Long/indefinite tradable licences would promote investment in mmWave and support trading /leasing.

Existing use of mmWaves for fixed links may require different solutions for the 26 GHz and 40 GHz bands to facilitate migration to future mobile use

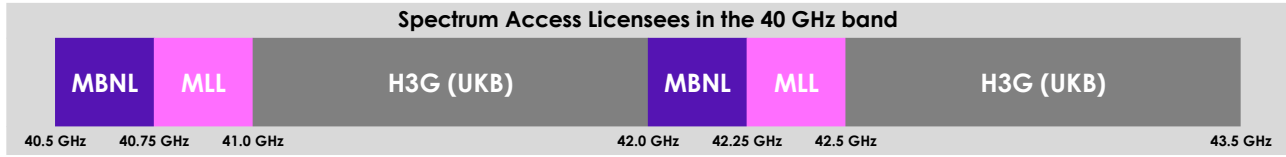
26 GHz



Revocation of the numerous individual fixed links licences is necessary to enable new mobile use cases

- A change of use to 5G has long been anticipated in Europe since 26GHz was harmonised as a 5G pioneer band; auctions already held in some other countries.
- An auction of national/sub-national licences would support investment in mobile use; benefits could be increased if funding was available to secure expedited band clearance.

40 GHz



Existing national spectrum access licences could be adapted to enable mobile use cases

- Parts of the 40 GHz band are already very efficiently used in the current fixed links use, whereas other parts are reportedly lightly used or unused at present
- 40GHz has not been auctioned yet for 5G elsewhere in Europe but it has been identified for IMT in the ITU.
- Market mechanisms could deliver change of use/users according to market demand without recourse to licence revocations.

Questions?

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